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fore he sat down to prepare his great scientific work on Peru for publication. This first volume is the key to the whole work, for it describes the methods and instruments used in the various branches of science, and contains a most interesting personal narrative of the author's numerous journeys, during nineteen years, over the length and breadth of the land. The work itself will consist of six parts. The first will be devoted to geography and meteorology, the second to geology, the third to mineralogy, the fourth and fifth parts to botany and zoölogy, and the sixth and last to ethnology, including descriptions of the architectural remains, pottery, arms, etc., of the different Peruvian tribes.

RECENT RISE OF THE PERUVIAN COAST. — Interesting illustrations of the comparatively recent change in the coast level of Peru and the geographical changes resulting, are afforded by Mr. A. Agassiz in the last Bulletin of the Museum of Comparative Zoölogy. A number of corals were found by him at the height of from 2900 to 3000 feet above the level of the sea, at a distance in a straight line from the Pacific Ocean of twenty miles. From the general features of the country along the coast of Peru, it requires but little imagination to reconstruct the former internal sea formed by the Coast Range, which must have, within comparatively recent geological times, covered the whole of the great nitrate basin of Peru, and which has gradually been elevated to its present position. This inland sea then became a salt lake, afterwards a lagoon, and finally was entirely drained. While Darwin showed that beyond doubt the coast of South America has been recently elevated 800 feet, Mr. Agassiz believes that the elevation reached an altitude of at least 2900 feet, and in earlier times, judging by the marine nature of the fauna of Lake Titicaca, to an elevation of 12,500 feet.

MICROSCOPY.[1]

THE LIMITS OF MICROSCOPIC VISION. — In his recent annual address to the Microscopical Society of London, the president, Mr. H. C. Sorby, F. R. S., discusses the relation between the limits of the powers of the microscope and the size of the ultimate molecules of matter. As the combined result of observation and theory, he concludes that the normal limit of distinct visibility with the most perfect microscope is one half of the wave-length of the light. If so, even with the very best lenses (except under special conditions) light itself is of too coarse a nature to even enable us to define objects less than $\frac{1}{80000}$ to $\frac{1}{100000}$ of an inch apart. It would appear, therefore, that as far as this question is concerned, our microscopes have already reached their ultimate limit. Adopting the results as to the size of the ultimate molecules of matter arrived at by Mr. Stanley, Sir W. Thomson, and Professor Clerk-Maxwell, Mr. Sorby calculates that in the smallest interval which could be distinctly seen by the best possible microscope, there would be about two thousand molecules of liquid water or about five hundred and twenty of albumen lying end to end; and that in order to see the ultimate constitution of organic bodies, we should requre a magnifying power from five hundred to two thousand times greater than those we now possess. He calculates that with our highest powers we are as far from seeing the ultimate molecules of organic substances as we should be from seeing the contents of a newspaper with the naked eye at the distance of a third of a mile. A spherical particle one tenth the diameter of the smallest speck that could be already defined with our best and highest powers, might nevertheless contain no less than one million structural molecules. Mr. Sorby makes a very interesting application of his results to Mr. Darwin's theory of pangenesis, his general conclusion being that no serious objection can be raised against the theory when examined from a purely physical point of view, as far as relates to the inheritance of a very complex variety of characters by the first generation. — A. W. BENNETT.

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[1] This department is conducted by DR. R. H. WARD, Troy, N. Y.

BOSTON MICROSCOPICAL SOCIETY. — This society held a public reception at Fraternity Hall, on the evening of April 27th, for the purpose of making better known its organization and aims. A short exhibition with the oxy-hydrogen microscope was given, in addition to the use of more than fifty table microscopes, with their accessory apparatus.

EXCHANGES. — [Notices, not exceeding four lines in length, of microscopical objects or apparatus wanted or offered in exchange, not sale, will be inserted in this column without expense.]

Arranged diatoms in exchange for good objects. Address offers to Christian Febiger, Wilmington, Del.

Extract of hop, mounted, showing lupulin crystals; in exchange for any mounted objects. Address Richard Allen, 146 North Fourth Street, Troy, N. Y.

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SCIENTIFIC NEWS.

— Physicians will be interested in a work entitled Micro-Photographs in Histology, Normal and Pathological, by Carl Seiler, in conjunction with J. Gibbons Hunt, M. D., and J. G. Richardson, M. D., to be published in twelve number by J. H. Coates, of Philadelphia.

— At a late meeting of the Paris Geographical Society, Dr. Haney stated that a cavern containing numerous Caraïb remains had been discovered at the western extremity of Cuba, and that these proved that the whole of the island was at one time inhabited by that race.

— Professor Marsh publishes in the *American Journal of Science*, for June, a Notice of a New Suborder of Pterosauria. The group is distinguished by the want of teeth.

— Mr. A. R. Marvine, a geologist of much promise, has recently died. He was at the time of his death attached to Professor Hayden's Survey.